United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Upper Snake River Districts
Pocatello Field Office
1111 North 8th Avenue
Pocatello, Idaho 83201-5789

In Reply
Refer To:

3500
(I-012890)

Dear Reader:

Enclosed is the Final Supplemental Environmental Impact Statement (SEIS) for the Simplot Smoky Canyon Mine, Panels B and C, prepared by the Bureau of Land Management (BLM) Pocatello Field Office and the U. S. Forest Service (USFS) Caribou-Targhee National Forest.

This SEIS analyzes the direct, indirect and cumulative impacts associated with development of open pits, haul roads, overburden disposal areas, and related facilities that would be utilized during operation of the B and C Panels. In particular, mitigation and monitoring related to potential mobilization of selenium contained in overburden produced by these operations is addressed herein.

This Final SEIS has been prepared as a full-text version equivalent to the Draft SEIS that was distributed to the public in July, 2001, with the exception that comments received during review of the draft document have been addressed with added or modified text in this Final SEIS. The Final SEIS is being distributed in a three-hole punched format with binder spine and cover inserts that you can file or install in your own binder. This document constitutes the complete SEIS for this project.

The BLM will file the Final SEIS with the U.S. Environmental Protection Agency (EPA). EPA will then publish a Notice of Availability in the *Federal Register*. Beginning on the publication date of EPA's Notice of Availability in the *Federal Register*, a 30-day availability period will commence. In addition to EPA's Notice of Availability, BLM will publish a separate Notice of Availability with additional project information in the *Federal Register*.

Following the close of the Final SEIS availability period, a Record of Decision on this project will be issued by the BLM, with input from the USFS. A 30-day period for potential appeals on the Record of Decision will follow public release of that document.

If you would like further information on this project or the above-described process, contact Jeff Cundick, SEIS Project Manager, at 208-478-6354 or at the address shown on the cover page of the SEIS.

Sincerely,

Joe Kraayenbrink
Acting Manager
Pocatello Field Office

FINAL
SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT
SMOKY CANYON MINE, PANELS B & C

LEAD AGENCY:	U.S. Department of the Interior Bureau of Land Management Upper Snake River Districts Pocatello Field Office
JOINT LEAD AGENCY:	U.S. Department of Agriculture Forest Service Caribou-Targhee National Forest
PROJECT LOCATION:	Caribou County, Idaho
DATE Draft SEIS Filed with EPA:	July, 2001
DATE Final SEIS Filed with EPA:	April, 2002
MAILING ADDRESS FOR FURTHER INFORMATION AND COPIES OF THE Final SEIS:	Jeffrey Cundick SEIS Project Manager BLM Pocatello Field Office 1111 N. 8th Ave. Pocatello, ID 83201 (208) 478-6354

ABSTRACT

This Final Supplemental Environmental Impact Statement analyzes impacts related to the development of Panels B and C at the J. R. Simplot Smoky Canyon Mine in southeast Idaho. The Proposed Action includes developing two mine pits, haul roads and overburden disposal areas. Use of existing support and mill facilities would continue. These actions are included in a 1983 Record of Decision for the entire mine. This supplemental analysis reviews potential impacts from selenium and newly listed threatened, endangered and sensitive species and updates the previous impact analyses for other resources. Alternatives to the Proposed Action are also analyzed and site specific mitigation measures developed. The agency preferred Alternative is the Proposed Action as proposed in this FSEIS.

RESPONSIBLE OFFICIAL FOR SEIS:	Idaho State Director Bureau of Land Management

SMOKY CANYON MINE FINAL SUPPLEMENTAL EIS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF TECHNICAL REPORTS

Geology, Minerals, and Topography
Air Resources & Noise
Water Resources
Soils and Watershed
Vegetation
Wetlands
Wildlife Resources
Fisheries and Aquatic Resources
Threatened, Endangered, and Sensitive Species
Grazing Management
Recreation and Wilderness
Visual Resources
Cultural Resources and Native American Concerns
Social and Economic Resources
Transportation

These reports are available from the Bureau of Land Management, Pocatello Field Office.

This page intentionally blank

SUMMARY

The environmental impacts of the J. R. Simplot Company Smoky Canyon phosphate mine (Simplot), located in Idaho approximately 10 miles west of Afton, Wyoming, were reviewed in draft and final Environmental Impact Statements prepared by the U.S. Forest Service (USFS) and the Department of Interior in 1981 and 1982 respectively. The Record of Decision issued after the review in 1983 permitted the development of the federal phosphate leases with five open pit mine panels known as Panels A, B, C, D, and E including permanent disposal of overburden external to these pits in approved locations. A change in mining sequence of the five mine panels was reviewed by an Environmental Analysis prepared by the USFS and Bureau of Land Management (BLM) in 1992 and a Decision Record was subsequently issued. The ore is milled on site and tailings are disposed in two tailings ponds located on Simplot property east of the mine. An Environmental Analysis for the full development of the tailings facility was prepared by the U.S. Corps of Engineers (USCOE) in 1990 and subsequent approval of the project included mitigation plans for disturbance of designated wetlands.

The Record of Decision for the Smoky Canyon Mine required submission of detailed mining plans for each approved mine panel before its construction so the regulatory agencies could assess potential site-specific environmental impacts and determine appropriate mitigation requirements. In June of 1999 Simplot submitted its plans for opening Panels B and C to the USFS and BLM. The regulatory agencies determined that the 1981 and 1982 EISs did not adequately evaluate the potential impacts of the proposed operations related to selenium or newly listed threatened, endangered and sensitive species. The decision was made to prepare a supplemental environmental impact statement (SEIS) to evaluate these potential impacts.

This SEIS describes Simplot's Proposed Action and reasonable alternatives to the Proposed Action along with the potential environmental consequences that could result from implementation of these actions. Potential direct, indirect and cumulative effects of the actions are reviewed and analyzed. Existing environmental effects of the current mining and milling operations are reviewed as part of the cumulative effects analysis. Detailed review of the effects of selenium and other potential contaminants from the existing mining and mill operations has not been conducted as part of this SEIS and will be conducted as described in the Historic Mining Environmental Impact Investigation Report (HMEII). The investigation and mitigation of the contamination from existing mining operations will be conducted by J.R. Simplot under the direction of the U.S. Forest Service. The State of Idaho Department of Environmental Quality (IDEQ) will investigate mill tailings disposal ponds. Support and assistance will be provided under the direction provided in a Memorandum of Understanding from U.S. Environmental Protection Agency (EPA), IDEQ, Bureau of Land Management, U.S. Fish and Wildlife Services, Bureau of Indian Affairs, and the Shoshone-Bannock tribes. Authority to conduct these investigations is granted by State and Federal statutes including the Comprehensive Environmental Response, Compensation Liability Act (CERCLA), IDAPA 58.01.05, Hazardous Waste Management Rules; IDAPA 58.01.11 Ground water Quality Rule; IDAPA 58.01.02, Water Quality Standards And Waste Water Treatment Requirements; IDAPA 20.03.02, Rules governing Exploration and Surface Mining in Idaho, and IDAPA 37.03.05, Mine Tailings Impoundment Structure Rules.

Proposed Action

The Proposed Action would consist of developing two open pits, known as Panels B and C which would involve excavation of approximately 93.77 million tons (MMT) of overburden rock and phosphate ore using standard open pit mining methods over a mine life of 4.6 years. The overburden would be used to backfill the new open pits as well as complete the backfilling of nearby Panel A. This would entail rehandling 4 percent of the total overburden moved. Remaining overburden would be placed in an external overburden disposal area located immediately south of Panel B on the ridge top. The two new panels and the external overburden disposal area are located within the approximate boundaries of these same facilities as described in the 1982 Final EIS. The Proposed Action is not an expansion of the existing mining operations at Smoky Canyon but is the continuation of the planned development of the Smoky Canyon federal leases as reviewed in the 1982 Final EIS and approved in the 1983 Record of Decision.

Ore from the new panels would be processed in the existing mill and ore concentrate would be pumped through the existing slurry pipeline to Simplot's Don Plant in Pocatello where the ore would be converted to fertilizer products. Tailings from the Smoky Canyon mill would be slurried to the existing tailings pond facility located on Simplot property east of the mine. Sufficient capacity for the tailings produced during the Panels B and C operations is already available in the permitted tailings facilities and additional government approvals for these tailings are not necessary.

The Proposed Action would involve disturbance of 835 acres of which 618 acres would be new disturbance and 217 acres would be existing mine disturbance that would be backfilled and reclaimed. A total of 822 acres would be reclaimed and revegetated leaving 13 acres of highwalls unreclaimed.

The existing staff would be employed in the Proposed Action and all transportation and utility support would be provided by existing infrastructure. The current power line extending over the ridge from the Roberts Creek area would need to be relocated but all disturbance for this relocation would be within the general mining disturbance area of the Proposed Action.

New haul roads would connect the new mine panels to the existing mill and the new external overburden disposal area. A new haul road would connect the north ends of Panels B and C and would require installation of a 300-foot long culvert in Smoky Creek which would be buried by a 45-foot high road fill. The existing public access road up Smoky Canyon would be rerouted up the north side of Smoky Canyon to cross the new haul road at a manned or automatic guard station. A new access road crossing of Smoky Creek, with a new approximately 100-foot culvert would be necessitated where this re-aligned access road rejoins the existing access road south of the new haul road crossing. Public travel up the access road would be hindered by the guard station, a necessity to safely separate haul truck traffic from public traffic at the road intersection. The existing access road crossing of Smoky Creek at the current intersection of the Smoky Canyon road and the road leading to the Simplot mill would be widened almost 100 feet to allow construction of a new haul road from the south end of Panel C to the mill. Another guard station would be built at this road intersection to protect public traffic on the Smoky Canyon access road from the haul road traffic. All of the new culverts would be designed to pass peak flow from a 100-year storm.

A haul road from the northern portion of Panel B pit to the mill would parallel Smoky Creek. This haul road fill would encroach on Smoky Creek in two locations totaling about 200 feet. The haul road fill in these areas would be supported out of the Smoky Creek channel by gabions.

All road fills and gabions would be built from chert or limestone overburden to minimize leaching of selenium or other contaminants to Smoky Creek. All of the new culverts, road fills, and gabions would be removed from the creek channel during reclamation activities and the channel restored.

The existing access road which would be temporarily abandoned for the road crossing of the northern haul road would also be restored to its original condition.

Surface water impacts would be reduced with implementation of Best Management Practices (BMPs) for control of: erosion of disturbed areas, off-site release of runoff and suspended sediment, and control of development of overburden seeps. All areas of seleniferous overburden would be capped with 8 feet of chert and 1 to 3 feet of topsoil for a total cap thickness of 9 to 11 feet. This cap is intended to isolate the seleniferous overburden from the surface environment and prevent the long-term effects of erosion, sedimentation, and biological uptake of selenium and other contaminants.

The new overburden disposal areas would be designed and constructed with recently developed management practices to control generation and discharge of seepage carrying contaminants leached from the overburden. These management practices would include: selective handling of seleniferous overburden, consolidation of overburden to reduce permeability, control of permeability of the contact between overburden and the underlying foundation, timely handling and placement of overburden to reduce exposure to weathering, and modification of foundation permeability as required to prevent perched saturated conditions and potential overburden seeps.

Runoff from the surface of the cap would be collected at the margins of certain portions of the overburden fills and directed into the subsurface through permeable chert rock recharge areas. The collected runoff would readily infiltrate through the coarse chert into the permeable bedrock where it would recharge the local aquifer with large quantities of clean water which would help mitigate the water quality impacts of water infiltrating through the overburden shales.

The external overburden disposal site and the pit backfills would be constructed to reduce to the potential for development of seleniferous seeps along the final toe of these fills. These practices would include special preparation of the foundation of the fills and segregating seleniferous overburden so it would be placed within the core of the fills away from their final toes.

Infiltration of precipitation into the seleniferous overburden would be controlled through application of management practices including: sloping and grading, avoiding placement in stream channels, preventing surface ponding, management of snow on active disposal areas, reduction of run-on, and reducing surface area. Concurrent reclamation and revegetation of capped areas would restore vegetative evapotranspiration as quickly as feasible to further reduce net infiltration into the overburden.

Reclamation would be conducted concurrent with mining operations and would include: salvaging available topsoil from areas proposed for disturbance, regrading to maximum 3h:1v slopes, spreading 1 to 3 feet of topsoil on reclaimed areas, seeding and fertilizing for establishment of grass cover, and reforestation of previously forested areas. Control of grazing and weed infestation would be practiced until the reclamation cover is considered successful.

Environmental monitoring and mitigation practices required by the regulatory agencies would be incorporated into the final Record of Decision.

Alternatives

Two alternatives were developed to address the main environmental impact issues identified during scoping which were related to the potential mobilization of selenium and other contaminants to the environment during and after mining operations in Panels B and C.

Alternative A would include all components of the Proposed Action except that all seleniferous overburden would be returned to the pit backfills, requiring a greater backfill thickness in Panel B. This would eliminate any external disposal of seleniferous overburden and would reduce the surface area of seleniferous overburden requiring capping. It would entail rehandling 16 percent of the total overburden moved. Non-seleniferous overburden would still be placed in the external overburden disposal facility which would not require capping. The cap design would be the same as the Proposed Action with eight feet of chert and one to three feet of topsoil.

Alternative B would also include all the components of the Proposed Action but all overburden would be returned to the pit backfills of Panels A, B and C. Overburden would be temporarily stored in the footprint of the external overburden disposal site but all overburden would be removed from this site before reclamation. This alternative would eliminate any external permanent disposal of overburden regardless of its selenium content. It would have the same area of seleniferous overburden as Alternative A. It would entail rehandling 36 percent of the total overburden moved. The cap for this alternative would be the same as for the Proposed Action and Alternative A, eight feet of chert and one to three feet of topsoil.

The thickness of the chert cap for the Alternatives would be the same as the Proposed Action, eight feet. Adding 1 to 3 feet of topsoil over the chert would produce a total cap thickness of 9-11 feet.

The No Action Alternative would occur in the event the agencies did not approve of the mine plans and mitigation plans for the mining of Panels B and C. Mining in the panels would not occur until such time an acceptable mine and mitigation plan was approved by the agencies.

Agency Preferred Alternative

The agencies have selected the Proposed Action, as mitigated by the proposed design and management practices, for the Preferred Alternative.

Environmental Impacts

Analysis of the potential environmental impacts from the Proposed Action and Alternatives is presented in Chapter 4. A summary and comparison of the Proposed Action and the Alternatives is contained in Tables 2.6-1 and 2.6-2. The following summary includes brief descriptions of these potential environmental impacts.

Proposed Action

Geology, Minerals, Topography

The Proposed Action would result in the movement of approximately 93.77 million tons (MMT) of overburden rock and ore resulting in extraction of the phosphate ore resource on the property. Backfilling all pits with overburden would reduce the potential recovery of the remaining (deeper) phosphate resource in the future. After backfilling the pits, the highwall in Panel B would be 2,800 feet long and 250 feet high. The highwall in Panel C would total 3,100 feet in length and vary from 50 to 150 feet high. Approximately 4 percent of the overburden would be rehandled in the Proposed Action. The backfilling of the pits would use 69 percent of the overburden while 31 percent would be placed in the external overburden disposal site. Seleniferous overburden could be placed in any of the overburden disposal

areas totaling 722 acres. Acid rock drainage is not expected to result from the Proposed Action. Seleniferous overburden could be leached by infiltration of precipitation and resulting seepage from the bottom of the overburden fills is expected to have concentrations of cadmium, manganese, selenium, sulfate and total dissolved solids (TDS) greater than groundwater or surface water quality standards. This leachate would percolate downward and is not expected to discharge to the surface as overburden seeps.

Air Resources and Noise

Air borne particulate matter is the most common air pollutant emission associated with mining operations. Under the Proposed Action there would be a 17 percent increase over current conditions in annual total suspended particulates (TSP) associated with excavation, hauling, and active disturbance in the mine pits, panels, and haul roads. The annual impact of Alternative A is 299 percent higher than current conditions and Alternative B would be 373 percent higher than existing conditions in annual TSP emissions.

With the existing topography, fairly dense vegetation growth, and the lack of noise receptors in the study area, the impact of noise from the Proposed Action and Alternatives should be minimal. With the Proposed Action and Alternatives, the source of noise would shift approximately 4.5 miles to the north of the present mining activities in Panel E.

Water Resources

Direct and indirect impacts on water resources would result from the Proposed Action. Surface water impacts would result from surface disturbances related to the proposed mining activities within the drainage areas of Smoky and Roberts Creeks. These disturbances would produce increased sediment loadings which would be controlled by use of sediment collection basins, silt fences, sediment traps, concurrent reclamation of disturbed areas, runoff diversion and collection ditches and other best management practices. Sediment containing selenium and metals mobilized during erosion of the overburden would be a temporary impact that would be eliminated when these areas are covered with 8 feet of chert and 1 to 3 feet of topsoil during reclamation. The largest contributor of sediment would be road construction in Smoky Canyon. Sediment from this activity would be chemically benign because the road fills would be made of chert and limestone.

Diversion and collection of runoff from the disturbed area in the proposed mine water management facilities would temporarily reduce runoff by about 14 percent to Smoky Creek and approximately 10 percent to Roberts Creek.

The collection of runoff in the runoff recharge areas would permanently reduce ephemeral runoff by about 8 percent to Smoky Creek and 11 percent to Roberts Creek. This is not expected to reduce the perennial base flows of either creek which are sustained by springs.

Overburden would be removed from the open pits and placed in an external overburden disposal site and pit backfills that would be subject to net infiltration from precipitation and snowmelt. This infiltration of meteoric water could dissolve soluble chemical constituents from the overburden as it passes downward through the material. Column leaching tests of overburden samples have indicated that certain chemical constituents may be leached in seepage from the overburden in concentrations that are above either drinking water standards or cold water aquatic life criterion. These included: cadmium, manganese, selenium, sulfate and total dissolved solids (TDS). This seepage could be subject to physical and chemical changes within the overburden mass and the unsaturated bedrock lying between the overburden and the water table in the Wells Formation as it percolated downward under the influence of gravity. The seepage would then enter the aquifer where it would be diluted and further attenuated by chemical interactions with the aquifer water and rock matrix as the water flowed down gradient in the Wells Formation.

Groundwater modeling of the potential impacts from seepage was conservative in that it did not assume any physical or chemical attenuation (decrease in concentration) of the seepage. Attenuation may occur but existing data do not allow quantification of it. Groundwater concentrations greater than the selenium MCL were predicted to occur under approximately 550 acres of the mine area. The portion of this impact area west of the south half of the A Panel where the proposed mitigative measures cannot be built is estimated to be 100 acres. Predicted manganese concentrations were greater than secondary MCLs in this same vicinity but impacted a smaller area. The water quality in the Culinary Well is predicted to continue to comply with drinking water standards for selenium and manganese. The modeled concentrations in the groundwater for cadmium, sulfate and TDS were less than their applicable drinking water standards. The model results show that detectable concentrations of the contaminants contributed by the seepage through the overburden were estimated to occur approximately 0.5 to 0.66 mile downgradient to the west and northwest of the Proposed Action and 0.5 mile to the east.

To account for potential variability in the actual selenium concentration in the overburden seepage, a starting concentration of 0.72 mg/l was also used in the groundwater impact analysis. This concentration correlates to the highest average selenium concentration measured at the Smoky Canyon Mine for an overburden seep at the D Panel and is also greater than 87 percent of the average selenium concentrations measured in southeastern Idaho. These modeling results showed that the proposed mitigative measures were effective in limiting the area of concentrations of selenium and manganese over their MCLs to under the mine area. The area of concentrations greater than the selenium MCL west of the south half of the A Panel were expanded by about 58 acres in these modeling results. In addition, there was an area of about 41 acres west of the C Panel that was predicted to have concentrations greater than the selenium MCL. Both of these areas are places were the proposed groundwater impact mitigation measures cannot be built.

Lower Smoky Spring provides a perennial water source for Lower Smoky Creek. Available data indicates that Lower Smoky Spring may not discharge water from the Wells Formation which is the aquifer that would be impacted by the Proposed Action and Alternatives. If this is the case, there would be no possibility of water quality impacts to Lower Smoky Spring. To be conservative, groundwater modeling of the fate and transport of chemical constituents derived from the overburden seepage assumed that the maximum discharge from this spring (about 1 cfs) was obtained from the Wells Formation. Using seepage water quality predicted by column testing in the groundwater model, concentrations of the contaminants contributed by the overburden seepage were estimated at Lower Smoky Spring. All of these concentrations were below the applicable cold water aquatic life criterion.

Impacts to water quality in the Wells Formation aquifer from seepage through the proposed overburden facilities is expected to be an irreversible and irretrievable commitment of this groundwater resource. Over a long period of time (thousands of years) concentrations of chemical constituents in overburden seepage should decrease as soluble chemical species are leached out of the material and their concentrations decrease in the overburden. Seepage concentrations are expected to be less than groundwater standards within 200 years.

Mining of the Panel C pit highwall within about 200 feet below the existing Sheep Spring would not impact the recharge area uphill of the spring but could affect the groundwater flow beneath the spring. It is impossible to predict if this affect would change the flow of this spring.

The amount of Wells Formation groundwater pumped for culinary and process uses at the Smoky Canyon facilities is less than originally evaluated in the Smoky Canyon Mine DEIS (USFS, 1981) and is not expected to have any noticeable impacts on the amount of groundwater presently available at other water wells and springs in the general area.

The Culinary Well is regulated as a public drinking water source for the mine and provides water for drinking, potable and industrial uses. Retail bottled water from an off-site source is also supplied by Simplot.

Soil and Watershed
The Proposed Action would disturb approximately 618 acres of currently undisturbed soil and watershed. Natural structure and biological condition of the salvaged soil would be disrupted. Some soil would be lost during salvage activities due to mechanical limitations and topographic operating constraints. Other soil would be lost to erosion from runoff on surfaces at soil stockpiles and reclaimed areas until they are stabilized by revegetation. Eroded sediment can be carried to the Smoky Creek and Roberts Creek watersheds by runoff which would be controlled by application of Best Management Practices. Erosion rate of reclaimed areas would be higher than current baseline conditions for years after initial reclamation until revegetation is successful. Capping approximately 722 acres of seleniferous overburden with at least 8 feet of chert and 1 to 3 feet of topsoil would isolate the seleniferous material from the effects of erosion and biological uptake. All 618 acres of new disturbance would be covered with topsoil for reclamation and another 217 acres of existing mine disturbance would also be capped and topsoiled.

Vegetation
The Proposed Action would disturb approximately 618 acres of vegetative cover including: aspen, conifer, and mixed aspen-conifer forest as well as smaller amounts of mixed shrub and sagebrush. Reclamation activities would re-establish an initial grass cover with long-term potential of reforestation with aspen and conifer. This reclamation would also be applied to an additional 217 acres of currently disturbed mining area that would be backfilled, sloped and reclaimed under the Proposed Action. Approximately 722 acres of seleniferous overburden area would be covered with 8 feet of chert and 1 to 3 feet of topsoil to isolate it from the surface environment. This is expected to control uptake of selenium and other contaminants in vegetation that becomes re-established on the reclaimed areas. Ground disturbance would be susceptible to weed infestation which would be controlled by monitoring and prompt control measures until desirable revegetation cover is stabilized in reclaimed areas and is able to compete against invasive weed species. Approximately 13 acres would remain as highwall after reclamation is completed and would not be revegetated.

Wetlands
Riverine wetland type in the Proposed Action area occurs along the bottom of Smoky Canyon and a side drainage below Sheep Spring. Approximately 0.3 acres of this wetland type would be disturbed by the Proposed Action, in compliance with the terms of a permit issued by the U. S. Corps of Engineers. These impacts would occur from building road crossings in three locations in the Smoky Creek channel and mining out the drainage channel below Sheep Spring in the Panel C open pit. Runoff and suspended sediment discharged from areas disturbed by the Proposed Action would have the potential to deposit additional sediment in downstream wetlands. These discharges would be managed under the Clean Water Act through the Mine's Storm Water Pollution Prevention Plan and regulated under the 404 permit process. Storm water runoff control at the mine is designed to prevent discharge of runoff and sediment. During reclamation, all the disturbed wetland areas would be restored to approximately pre-mining conditions.

Wildlife
As a result of implementation of the Proposed Action, wildlife would be displaced by the mining activities to similar habitat in the nearby areas. Displacement would alter natural wildlife distribution patterns and result in additional use of other habitat. Mining disturbance and operations would lead to increased mortality of species that are relatively immobile including: amphibians, reptiles and certain small birds and mammals. Reclamation activities would begin to restore the original habitat but conditions are expected to be more open than the largely forested baseline condition for years to come. This would alter wildlife distribution patterns potentially enhancing use of the reclaimed area by herbivores, small mammals, birds

and other prey species. This would also enhance use of the area by raptors and predators. Remaining highwalls would provide habitat that may be used by bats and birds.

Seleniferous overburden would be capped with 8 feet of chert and 1 to 3 feet of topsoil to isolate it from the surface environment and control bioaccumulation. However, it would be exposed for a period of time to erosion and runoff, weed growth, and direct contact to wildlife that might enter the active mining area. Small mammals and invertebrates could be exposed to seleniferous overburden by direct ingestion or foraging on weeds growing in the material. The duration of this exposure would be limited by concurrent capping and the continuous nature of the planned mining activities. Wildlife could be exposed to selenium in runoff water contained in sediment control ponds which may be used as drinking water by wildlife. The expected selenium concentration in this contained water would be less than published chronic toxicity concentrations. The Elk Habitat Effectiveness Index for the general area would be reduced by less than one percent due to the Proposed Action.

Wildlife using the existing tailings ponds as habitat can be exposed to selenium and metals in tailings water and solids. Bioaccumulation of these elements can occur from extended exposure to these contaminants by waterfowl, amphibians, reptiles or mammals using the tailings ponds and the edges of the ponds. Predators feeding on these species can further bioaccumulate these contaminants.

Fisheries and Aquatics

The proposed road crossings and gabion installations in Smoky Creek for the Proposed Action are upstream of an approximate one mile long reach of the creek where stream flows dry up to intermittent to ephemeral conditions. The stream in the area of the Proposed Action does not support trout and this construction would not directly impact spawning habitat. Sediment produced during construction and operation of the Proposed Action could be washed down Smoky Creek and into the lower perennial reaches that have fish and aquatic invertebrate habitat. The release of runoff and sediment from the site would be managed according to the Mine's Storm Water Pollution Prevention Plan which is designed to prevent releases of runoff from disturbed mine areas. Fill material placed in the creek for road fills and gabions would be non-seleniferous but could still produce suspended sediment in runoff. Proposed control measures for erosion and sediment control would reduce seasonal runoff discharges to the upper reaches of Smoky Creek reducing intermittent and ephemeral flow in this creek. This is not expected to affect the base flow of the lower perennial reaches of the creek which are maintained by spring flow downstream of the Proposed Action area and which support the fisheries and aquatic habitat in that area.

Threatened, Endangered and Sensitive Species

Baseline studies indicate the Proposed Action area supports potential habitat for some listed and sensitive species but is occupied by only a few of those species. Waterfowl foraging or nesting in the area of the tailings ponds may be exposed to elevated concentrations of selenium or trace metals. Bald eagles have been observed in the general area in the past and may be impacted by biological uptake of selenium if they were to regularly feed on waterfowl foraging in the tailings ponds. Potential habitat for lynx, gray wolf, grizzly bear, and wolverine exists in the general area but the proximity of existing mining activities would limit the use of the Proposed Action area by these species. The general area is considered potential habitat for the northern goshawk, boreal owl, flammulated owl, great gray owl, and three-toed woodpecker. No evidence of these species was found during the 2000 baseline studies within the area of the Proposed Action. The Proposed Action would impact forest and forest edge habitat for these species but would not impact any known nest sites. No listed or sensitive plants have been found in the Proposed Action area.

Grazing Management

The Proposed Action would remove less than 5 percent of the Pole Canyon grazing allotment area from grazing use during active mining and until reclamation is successful enough to support grazing again. Most of this reduction would be in conifer forest which is considered poor forage for grazing animals. No

reduction in animal months permitted on the allotment is likely to result from the Proposed Action. Reclamation activities would restore the suitable disturbed area to grass land which would temporarily increase grazing forage although long-term revegetation would include reforestation with mountain shrubs and trees. Ground disturbance could result in increased invasion by noxious weeds although weed control is part of the reclamation process.

The existing Sheep Spring watering trough would be temporarily relocated during mining of Panel C and would be re-established after mining.

The Proposed Action would be a potential barrier to moving grazing animals through the area until reclamation of these sites is successful enough to allow grazing on them.

Recreation and Wilderness
The Proposed Action would impact hunting in the vicinity of the Proposed Action by the relocation of wildlife and limiting hunting access. Current access to this area is limited by the presence of private land to the east and minimal road routes in the area. Mine area access is closed to non-mine vehicle traffic under a "Special Order" issued by the Forest Supervisor of the Caribou National Forest in 1984. Access to surrounding areas is also managed according to the order known as the "Travel Plan". A short-term increase in game density in adjacent areas may be followed by overall decrease in wildlife numbers following the reduction in habitat acreage. This would increase the density of hunters in adjacent areas and may diminish big game yields overall in the vicinity of the Proposed Action. No federally designated wilderness areas would be involved in the Proposed Action or Cumulative Effects Area. There would be no changes in existing access to roadless areas due to the Proposed Action. Two safety guard stations would be built on the Smoky Canyon access road at the haul road crossings.

Visual Resources
The Proposed Action and Alternatives area is accessible to the public from secondary roads only. The visual qualities of the Proposed Action area would be altered by vegetation removal, excavation of open pits, road cuts and fills, and the external overburden disposal facility. The changes in the short term would exceed guidelines for the Caribou-Targhee National Forest Partial Modification category. The severity of visual impacts is tempered by the reduced level of viewer sensitivity in the area which receives limited dispersed use. Long-term visual impacts would be reduced by reclamation activities including backfilling pits, covering highwalls, sloping backfilled areas to approximate original contour, and revegetation. With these reclamation efforts, the visual changes would comply with the Revised Forest Plan.

Cultural Resources
Under the Proposed Action no impacts would occur to recorded cultural resource sites eligible for listing on the National Register of Historic Places (NRHP).

Social and Economic Values
No additional employees would be needed for the Proposed Action compared to the existing mining operations so there should be no increase in local population due to the Proposed Action. Additional impacts to local community services and housing would be negligible. The costs of double handling 4 percent of the overburden and reclamation are estimated to be $4,799,000.

Native American Religious Concerns
No direct or indirect impacts related to Native American religious or traditional uses of the Proposed Action area have been identified. No Traditional Cultural Place or Property has been identified in the area of the Proposed Action or in the Cumulative Effects Area.

Environmental Justice
There would be no environmental justice impacts from the Proposed Action because there would be no socioeconomic or demographic changes caused by the Proposed Action.

Alternative A

Geology, Minerals, Topography
Alternative A would involve the same quantity of overburden rock and ore although all seleniferous overburden would be returned to the open pits as backfill. Implementation of this alternative would require rehandling 16 percent of the overburden compared to 4 percent for the Proposed Action. Economics of higher mining costs involved with this greater rehandle quantity could result in revisions of the mining plans to reduce the stripping ratio yielding less recoverable phosphate resource. After backfilling the pits, the highwall in Panel B would be 2,100 feet long and 200 feet high. The highwall in Panel C would total 3,100 feet in length and vary from 50 to 150 feet high. The backfilling of the pits would use 76 percent of the overburden while 24 percent would be placed in the external overburden disposal site. Seleniferous overburden would be placed only in the pit backfills totaling 478 acres compared to 722 acres for the Proposed Action. Acid rock drainage is not expected to result from the Alternative. Seleniferous overburden could be leached by infiltration of precipitation and resulting infiltration from the bottom of the overburden fills is expected to have concentrations of cadmium, manganese, selenium, sulfate and TDS greater than groundwater or surface water quality standards.

Air Resources and Noise
The impacts from noise for Alternative A would be essentially the same as the Proposed Action with the exception that the duration of noise would extend 10 months longer than the Proposed Action.

The increases in loading, unloading, hauling, and active disturbance activities in Alternative A all contribute to the increase and duration of airborne particulate. The annual total suspended particulate emissions for Alternative A would be 1242 TPY instead of 486 TPY for the Proposed Action.

Water Resources
There is no difference in the amount of disturbed acreage between the Proposed Action and Alternative A thus the annual amount of increased sediment loading and surface runoff reduction would be the same for both conditions. The time period of these impacts would be extended by about 10 months for Alternative A compared to the Proposed Action.

Approximately 16 percent of the total overburden would be rehandled which would extend the time period by about 10 months when this material would be subject to weathering and erosion before it is capped, compared to the Proposed Action.

Alternative A would result in a reduction in area of seepage through seleniferous overburden compared to the Proposed Action. The total quantity (CY) of seleniferous overburden potentially subject to leaching is the same as for the Proposed Action. Groundwater modeling showed essentially the same water chemistry impact below the pit backfill areas compared to the Proposed Action. The model results indicate that a total aquifer area of approximately 322 acres is estimated to have groundwater selenium concentrations greater than the MCL compared to 550 acres for the Proposed Action. Groundwater concentrations greater than the selenium MCL were predicted to occur under about 100 acres west of the south half of the A Panel where the proposed mitigative measures cannot be built. Predicted manganese concentrations were greater than secondary MCLs in this same vicinity but impacted a smaller area. This area will be further studied under the site-specific AOC. The COPC concentration at the Culinary Well for this Alternative was the same as the Proposed Action and was not greater than the drinking water standard. The concentration of detectable amounts of the contaminants contributed by seepage through the overburden in the Alternative A was estimated to extend approximately the same

distance downgradient as the Proposed Action with the exception that the impact due to the external overburden disposal area is eliminated. Currently un-quantified potential increases in concentrations of COPCs in seepage from the B Panel backfill could result in higher groundwater concentrations under Panel B compared to the Proposed Action. The estimated concentrations in Lower Smoky Spring were still non-detectable for all the contaminants.

Soil and Watershed
Alternative A would disturb the same amount of currently undisturbed soil and watershed as the Proposed Action producing the same direct and indirect impacts to soils and watersheds. Capping approximately 478 acres of seleniferous overburden with 9 to 11 feet of chert and topsoil would isolate the seleniferous material from the effects of erosion and biological uptake. This area is less than the 722 acres underlain by seleniferous overburden in the Proposed Action. All 618 acres of new disturbance would be covered with topsoil for reclamation and another 217 acres of existing mine disturbance would also be topsoiled. The time period of active mining and reclamation activities would be extended by 10 months over the Proposed Action.

Vegetation
The initial disturbance area for Alternative A would be the same as for the Proposed Action. The area of seleniferous overburden that would be capped would be 478 acres compared to 722 acres for the Proposed Action. The time period of active mining disturbance would be extended by 10 months over the Proposed Action.

Wetlands
The impacts to wetlands from Alternative A would be essentially the same as the Proposed Action except that the time period for active mining operations and subsequent erosion and sediment production would be extended by 10 months over the Proposed Action.

Wildlife
The impacts to grazing from Alternative A would be essentially the same as the Proposed Action except that the time period for direct exposure to seleniferous overburden before it is capped would be extended by 10 months over the Proposed Action.

Fisheries and Aquatics
The impacts to fisheries and aquatics habitat from Alternative A would be the same as for the Proposed Action with the exception that the period of active mining disturbance would be extended by 10 months over the Proposed Action.

Threatened, Endangered and Sensitive Species
The impacts to threatened, endangered and sensitive species under Alternative A would be the same as for the Proposed Action with the exception that the period of active disturbance would be extended by 10 months over the Proposed Action.

Grazing Management
The impacts to grazing from Alternative A would be essentially the same as the Proposed Action except that the time period for active mining disturbance would be extended by 10 months.

Recreation and Wilderness
Alternative A would have the same impacts on recreation and wilderness as the Proposed Action although the time period of these impacts would be 10 months longer than the Proposed Action.

Visual Resources
Visual impacts from Alternative A would be essentially the same as the Proposed Action although the time period of disturbance before reclamation is completed would be 10 months longer.

Cultural Resources
No impacts to recorded NRHP eligible cultural resource sites would occur as a result of Alternative A.

Social and Economic Values
No additional employees would be needed for Alternative A compared to the existing mining operations so there would be no increase in local population due to this Alternative. Impacts to local community services and housing would be negligible. Public resource (phosphate) utilization would be less for Alternative A than for the Proposed Action if the mining plans were adjusted for the higher mining costs. Double handling 16 percent of the overburden would add $6,052,000 to the reclamation cost over the cost of reclamation under the Proposed Action.

Native American Religious Concerns
No direct or indirect impacts related to Native American religious or traditional uses of the Alternative A area have been identified. No Traditional Cultural Place or Property has been identified in the area of Alternative A or in the Cumulative Effects area.

Environmental Justice
There would be no environmental justice impacts from Alternative A because there would be no socioeconomic or demographic changes caused by the Alternative.

Alternative B

Geology, Minerals, Topography
Alternative B would involve the same quantity of overburden rock and ore as the Proposed Action although all overburden would be returned to the open pits as backfill. This would require rehandling 36 percent of the overburden compared to 4 percent for the Proposed Action and 16 percent for Alternative A. Economics of higher mining costs involved with this greater rehandle quantity result in revisions of the mining plans to reduce the stripping ratio yielding less recoverable phosphate resource than either Alternative A or the Proposed Action. After backfilling the pits, the highwall in Panel B would be completely eliminated and the top of the Panel B backfill would be higher than Alternative A or the Proposed Action. The highwall in Panel C would total 3,100 feet in length and vary from 50 to 150 feet high. The backfilling of the pits would use 100 percent of the overburden and no overburden would be placed permanently in the external overburden disposal site. Seleniferous overburden would be placed only in the pit backfills totaling 478 acres compared to 722 acres for the Proposed Action. Acid rock drainage is not expected to result from the Alternative. Seleniferous overburden could be leached by infiltration of precipitation and resulting seepage from the bottom of the overburden fills is expected to have concentrations of cadmium, manganese, selenium, sulfate and TDS greater than groundwater or surface water quality standards.

Air Resources and Noise
The impacts from noise for Alternative B would be essentially the same as the Proposed Action with the exception that the duration of the noise would extend 21 months longer than the Proposed Action and 11 months longer than Alternative A. The increases in loading, unloading, hauling, and active disturbance activities in Alternative B all contribute to the increase and duration of airborne particulate. The annual total suspended particulate emissions for Alternative B would be 1,548 TPY instead of 1,242 TPY for Alternative A and 486 TPY for the Proposed Action.

Water Resources
There is no difference in the amount of disturbed acreage between the Proposed Action and Alternative A or Alternative B thus the annual amount of increased sediment loading and surface runoff reduction would be the same for all three conditions. The time period of these impacts under Alternative B would be extended by about 21 months compared to the Proposed Action and 11 months compared to Alternative A. The total quantity (CY) of seleniferous overburden potentially subject to leaching is the same as for the Proposed Action and Alternative A. The area of seleniferous overburden disposal would be the same as Alternative A and the area of groundwater quality impacts would also be the same as Alternative A. Approximately 36 percent of the total overburden would be rehandled in this Alternative which would extend the time period when this material would be subject to weathering and erosion before it is capped, compared to 16 percent for Alternative A, and 4 percent for the Proposed Action. The modeled groundwater impacts for Alternative B are the same as for Alternative A. However, currently un-quantified, potential increases in concentrations of COPCs in seepage from the B Panel backfill could result in higher groundwater concentrations under Panel B compared to the Proposed Action.

Soil and Watershed
Alternative B would disturb the same amount of currently undisturbed soil and watershed as the Proposed Action producing the same direct and indirect impacts to soils and watersheds. Capping approximately 478 acres of seleniferous overburden with 9 to 11 feet of chert and topsoil would isolate the seleniferous material from the effects of erosion and biological uptake. This is the same as for Alternative A and is less than the 722 acres of seleniferous overburden in the Proposed Action. All 618 acres of new disturbance would be covered with topsoil for reclamation and another 217 acres of existing mine disturbance would also be topsoiled. The time period of active mining and reclamation activities would be extended by 21 months over the Proposed Action and by 11 months over Alternative A.

Vegetation
The initial disturbance area for Alternative B would be the same as for the Proposed Action and Alternative A. The area of seleniferous overburden that would be capped would be 478 acres compared to 722 acres for the Proposed Action and 478 acres for Alternative A. The time period of active mining disturbance would be extended by 21 months over the Proposed Action and by 11 months over Alternative A.

Wetlands
The impacts to wetlands from Alternative B would be essentially the same as the Proposed Action and Alternative A except that the time period for active mining operations and subsequent erosion and sediment production be extended by 21 months over the Proposed Action and by 11 months over Alternative A.

Wildlife
The impacts to grazing from Alternative B would be essentially the same as the Proposed Action and Alternative A except that the time period for direct exposure to seleniferous overburden before it is capped would be extended by 21 months over the Proposed Action and by 11 months over Alternative A.

Fisheries and Aquatics
The impacts to fisheries and aquatics habitat from Alternative B would be the same as for the Proposed Action and Alternative A with the exception that the period of active mining disturbance would be extended by 21 months over the Proposed Action and 11 months over Alternative A.

Threatened, Endangered and Sensitive Species
The impacts to threatened, endangered and sensitive species under Alternative B would be the same as for the Proposed Action and Alternative A with the exception that the period of active disturbance would be extended by 21 months over the Proposed Action and 11 months over Alternative A.

Grazing Management
The impacts to grazing from Alternative B would be essentially the same as the Proposed Action and Alternative A except that the time period for disturbance would be extended by 21 months compared to the Proposed Action and 11 months compared to Alternative A.

Recreation and Wilderness
Alternative B would have the same impacts on recreation and wilderness as the Proposed Action although the time period of these impacts would be 21 months longer than the Proposed Action and 11 months longer than Alternative A.

Visual Resources
Visual impacts from Alternative B would be slightly less than the Proposed Action and Alternative A. The external overburden disposal facility site would be utilized only temporarily and reclaimed. No residual high wall would remain in Panel B. The period of disturbance before reclamation is completed would be extended by 21 months over the Proposed Action and 11 months over Alternative A.

Cultural Resources
No impacts to recorded NRHP eligible cultural resource sites would occur as a result of Alternative B.

Social and Economic Values
No additional employees would be needed for Alternative B compared to the existing mining operations so there would be no increase in local population due to this Alternative. Impacts to local community services and housing would be negligible. Public resource (phosphate) utilization would be less for Alternative B than for the Proposed Action or Alternative A if the mine plans were adjusted for the higher mining costs related to more backfill. Double handling 36 percent of the overburden would add $17,900,000 to the rehandling and reclamation cost over the cost of the Proposed Action.

Native American Religious Concerns
No direct or indirect impacts related to Native American religious or traditional uses of the Alternative B area have been identified. No Traditional Cultural Place or Property has been identified in the area of Alternative B or in the Cumulative Effects area.

Environmental Justice
There would be no environmental justice impacts from the Alternative B because there would be no socioeconomic or demographic changes caused by the Alternative.